

Ohmsett: Capabilities and Recent Testing and Research

Alan Guarino

Senior Test Engineer

Ohmsett

The National Oil Spill Response Research & Renewable Energy Test Facility



An OHMSETT Primer



Brief History

- 1974—1987 Facility Operated by the EPA
- Mission: Waterborne Oil Spill Research & Testing
- Mothballed (1987-1989)
- 1989—Exxon Valdez grounding in the Prince William Sound
- 1990—Reopening of Ohmsett mandated by OPA-90
- Annual O&M Funding through the Oil Spill Liability Trust Fund
- Management of Ohmsett was charged to BSEE of DOI
- Operator/Engineer: MAR (MD), LLC in Rockville, MD

Ohmsett's Mission

- To Improve oil spill response through testing, training, and research & development
- Provide performance testing of marine renewable energy systems

Operated by U.S. Department of Interior's Bureau of Safety and Environmental Enforcement (BSEE) and maintained through a contract with

MAR (MD) LLC

Where is Ohmsett?

- Located on NWS Earle in Leonardo, New Jersey
- One hour south of New York City
- Nearby airports:
 - Newark
 - LaGuardia
 - JFK



203 meters (667 feet) Long
20 meters (65 feet) Wide
3.5 meters (11+ feet) Deep

Wave Maker

Half Hull

Conference/Training Room

Chemistry Laboratory

Machine Shop

Tow Bridge

Bridge Speed to 3.1 meters/sec

Filtration System

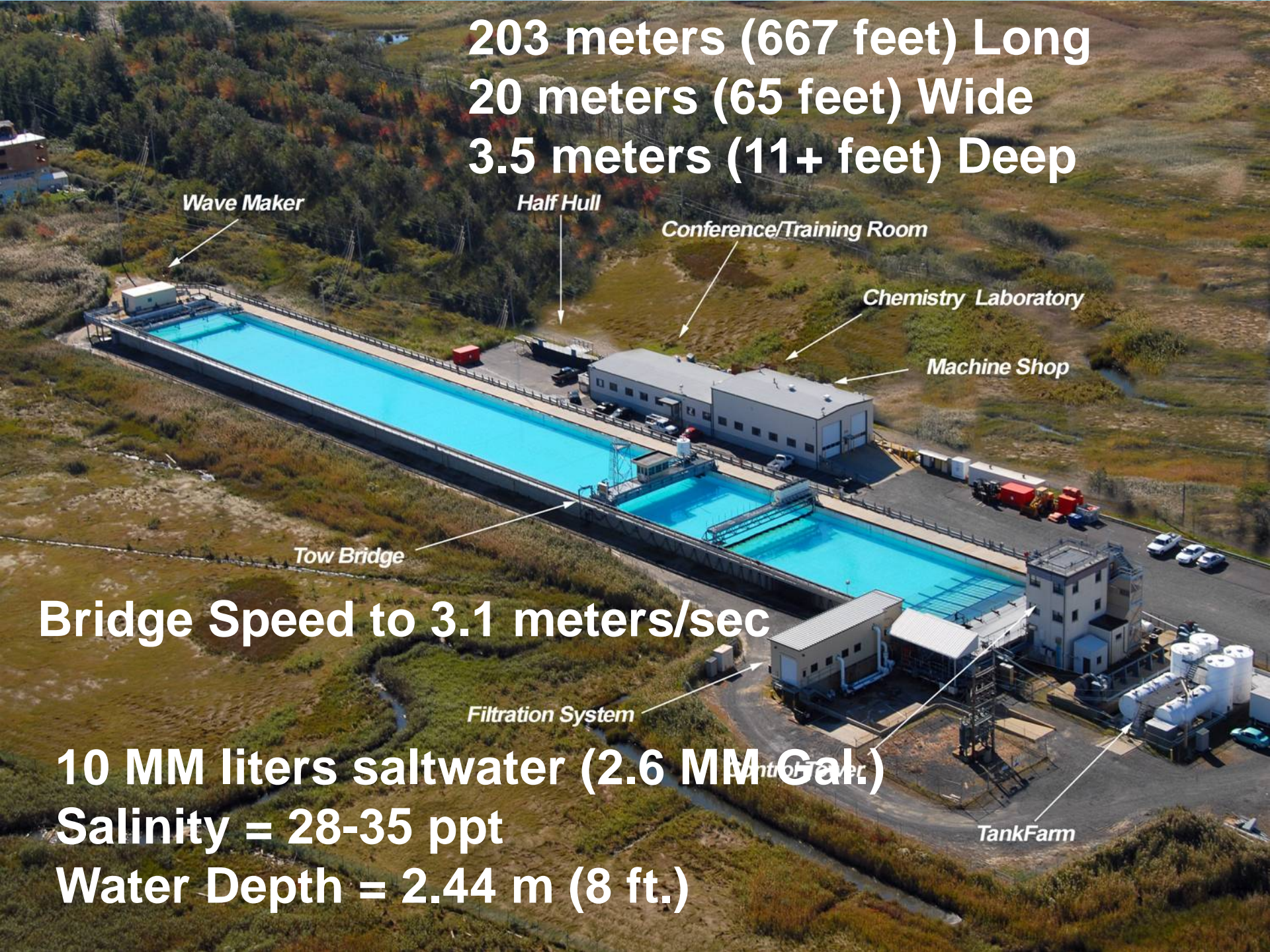
10 MM liters saltwater (2.6 MM Gal.)

Salinity = 28-35 ppt

Water Depth = 2.44 m (8 ft.)

Control Tower

Tank Farm



Wave Generator

- Bottom Hinged, Dual Flap
- Electric over Hydraulic Drive System
- Programmable High Performance Cylinders
- Regular (Sinusoidal) Waves with Variable Height, Frequency and Wavelength
- Programming Capability for Spectral Waves and Frequency Slide Mode
- Energy Damping Beach System

ALSO

On-Site Chemistry Lab



Conference/Classroom, Work Shop, Storage Spaces



What Ohmsett Does

Waterborne Oil Spill Recovery Equipment



Containment and Temporary Storage Devices



What Ohmsett Does

Dispersants and Herders



Subsurface Releases



What Ohmsett Does

In Situ Burning



Ice



What Ohmsett Does

Remote Sensing



Marine Hydrokinetic Devices (MHK)



What Ohmsett Does

Testing Standards

- Ohmsett collaborates with other organizations to help develop and improve equipment testing standards
- Organizations include:
 - ASTM F20 Subcommittee
 - U.S. Coast Guard

Training

- US Coast Guard
- Alaska Clean Seas
- Texas A&M
- Conoco Phillips
- Chevron
- American Petroleum Inst.

Recent Activities at Ohmsett





BSEE

Dispersant Comparison

Testing:

Cold Water & Warm Water

BSEE Dispersant Comparison Testing-Cold Water & Warm Water



BSEE Dispersant Comparison Testing-Cold Water & Warm Water



BSEE Dispersant Comparison Testing-Cold Water & Warm Water



BSEE Dispersant Comparison Testing-Cold Water & Warm Water



BSEE Dispersant Comparison Testing-Cold Water and Warm Water





API/SINTEF Large Scale Subsurface Release

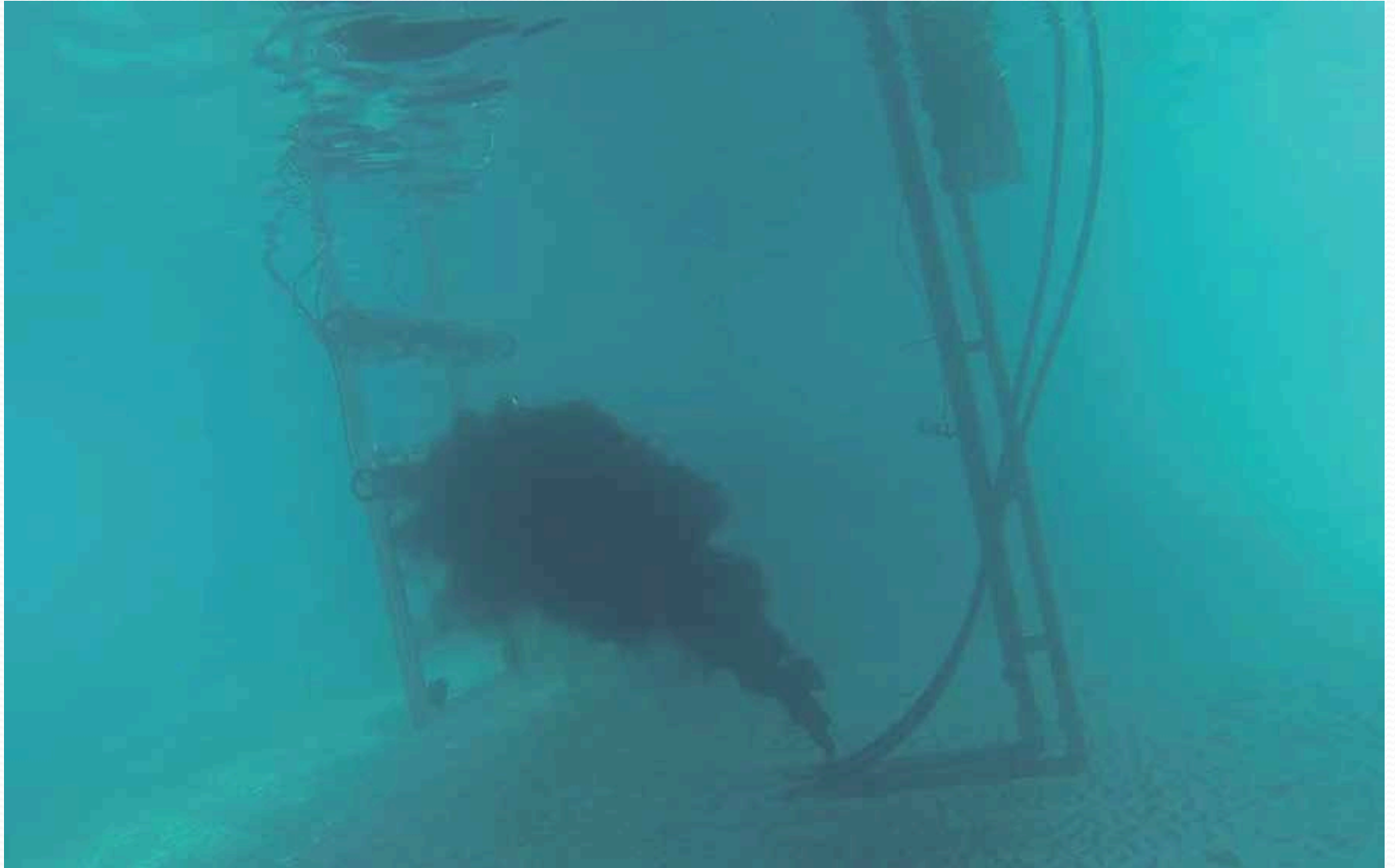
API/SINTEF Lg. Scale Subsurface Release



API/SINTEF Lg. Scale Subsurface Release



API/SINTEF Lg. Scale Subsurface Release



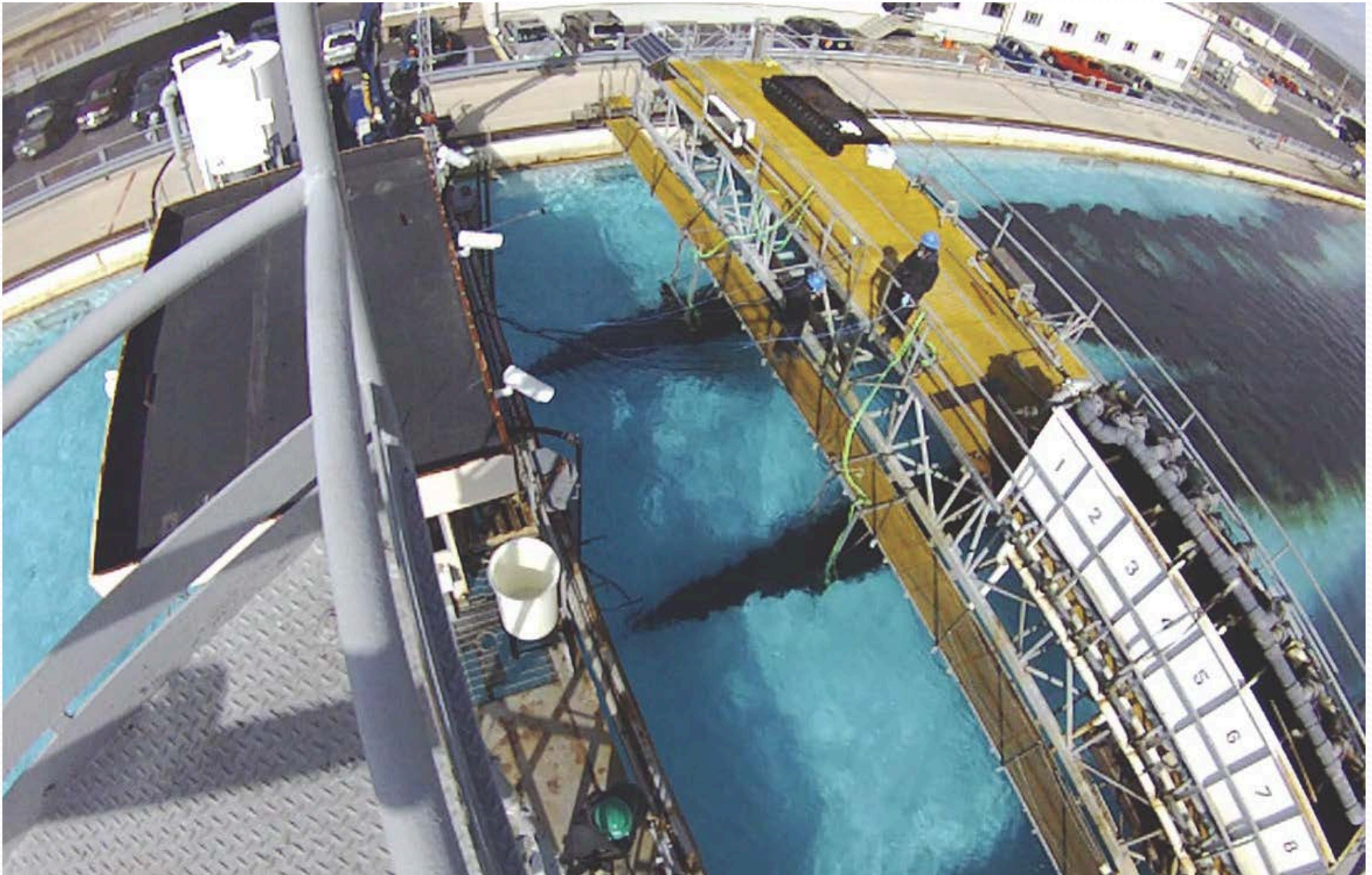
API/SINTEF Lg. Scale Subsurface Release



API/SINTEF Lg. Scale Subsurface Release



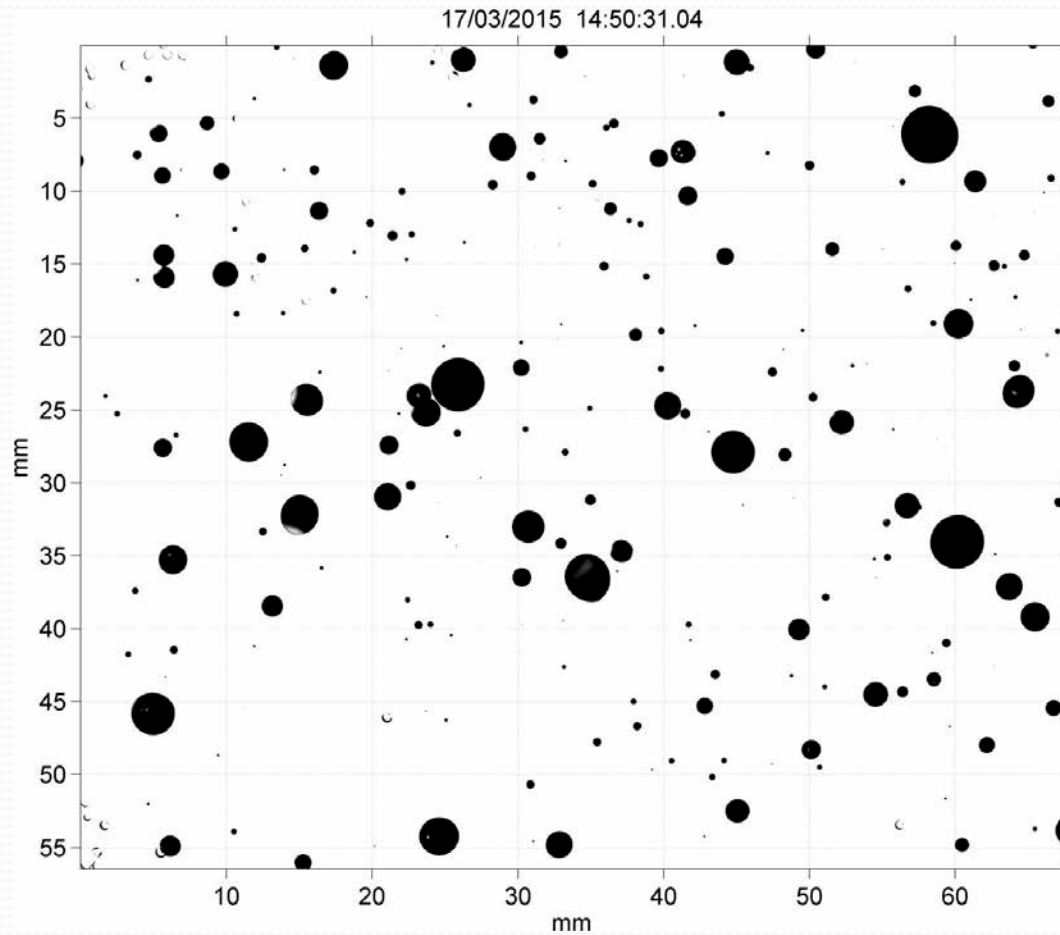
API/SINTEF Lg. Scale Subsurface Release



API/SINTEF Lg. Scale Subsurface Release



API/SINTEF Lg. Scale Subsurface Release





NOAA/WHOI/NSB

Whale Baleen
Hydrodynamic & Oil
Exposure Testing

NOAA/WHOI/NSB Whale Baleen Exposure Testing



NOAA/WHOI/NSB Whale Baleen Exposure



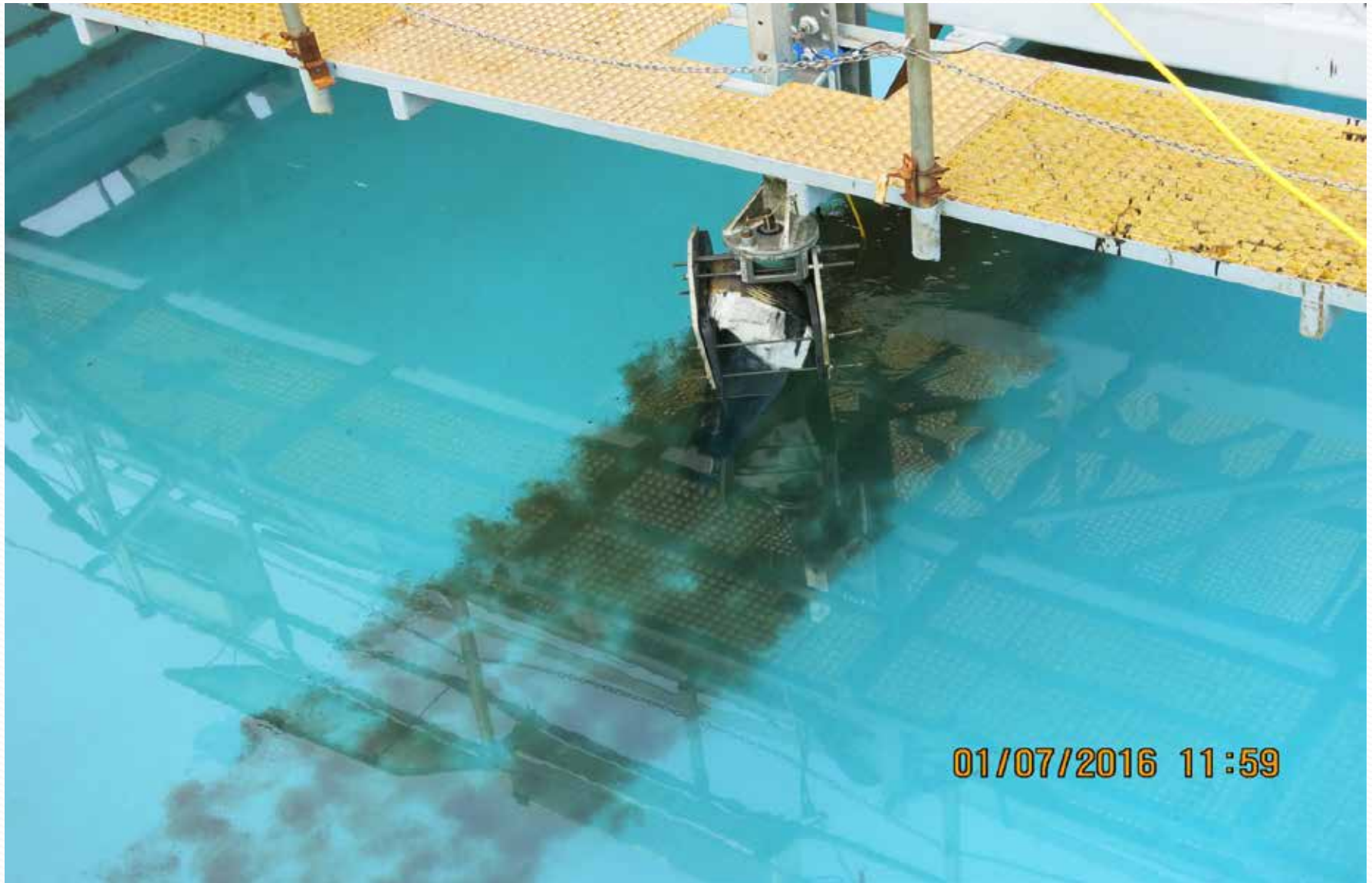
NOAA/WHOI/NSB Whale Baleen Exposure



NOAA/WHOI/NSB Whale Baleen Exposure



NOAA/WHOI/NSB Whale Baleen Exposure



NOAA/WHOI/NSB Whale Baleen Exposure



NOAA/WHOI/NSB Whale Baleen Exposure





Diminishing Slick Thickness

**BSEE Sponsored
ASTM Draft Method**

Diminishing Slick Thickness



Diminishing Slick Thickness





A Look Into the Future

Refined Dispersant Testing Protocol

- Wave Making and Beaches
- Remote Sensing
- Emulsions
- Vertical Subsurface Release Tank
- Indoor, Controlled Scale Flume/Wave Tank
- Enhanced Laboratory Capabilities

OHMSETT

The National Oil Spill Response Research & Renewable Energy Test Facility
Operated by the Department of the Interior – Bureau of Safety & Environmental Enforcement



Thank You

Alan Guarino, Senior Test Engr.
732-866-7283
aguarino@ohmsettnj.com

John Delia, Program Manager
732-866-7285
jdelia@ohmsettnj.com

